

AMENDMENTS TO THE CLAIMS

The following is a complete, marked up listing of revised claims with a status identifier in parentheses, underlined text indicating insertions, and strikethrough and/or double-bracketed text indicating deletions.

LISTING OF CLAIMS

1. (Original) A multi-chip package comprising:
 - a leadframe having a leadframe pad, the leadframe pad having an upper surface and a lower surface;
 - a first chip having a first plurality of bonding pads arranged on a first active surface;
 - a first adhesive member arranged between a portion of the first active surface and a portion of the lower surface of the leadframe pad, the first adhesive member attaching the first chip to the leadframe pad;
 - a second chip having a second plurality of bonding pads formed on a second active surface and a backside surface opposite the second active surface;
 - a second adhesive member arranged between a portion of the backside surface and a portion of the upper surface of the leadframe pad, the second adhesive member attaching the second chip to the leadframe pad.
2. (Original) A multi-chip package according to claim 1, wherein:
 - the leadframe pad includes a central opening; and

the first chip is mounted to the lower surface of the leadframe pad in a manner that exposes at least a portion of the first plurality of bonding pads within the central opening.

3. (Original) A multi-chip package according to claim 1, wherein:

the leadframe pad includes a central opening; and

the first chip is mounted to the lower surface of the leadframe pad in a manner that exposes each of the first plurality of bonding pads within the central opening.

4. (Original) A multi-chip package according to claim 2, wherein:

the second adhesive member is formed from a combination of an adhesive tape member and a cured liquid adhesive.

5. (Original) A multi-chip package comprising:

a leadframe having a leadframe pad, the leadframe pad having an upper surface, a lower surface and a central opening, inner leads and outer leads, the inner leads being arranged around the leadframe pad;

a first chip having a first plurality of bonding pads arranged on a first active surface;

a first adhesive member arranged between a portion of the first active surface and a portion of the lower surface, the first adhesive member attaching the first chip to the leadframe pad;

a first plurality of bonding wires providing electrical connections between the first plurality of bonding pads and inner leads;

a second chip having a second plurality of bonding pads formed on a second active surface and a backside surface opposite the second active surface;

a second adhesive member arranged between a portion of the backside surface and a portion of the upper surface of the leadframe pad, the second adhesive member attaching the second chip to the leadframe pad;

a second plurality of bonding wires providing electrical connections between the second plurality of bonding pads and the inner leads;

a package body sealing the first and second chips, the first and second pluralities of bonding wires and the inner leads; and

outer leads extending from the package body providing external electrical connections to the inner leads.

6. (Original) A multi-chip package according to claim 5, wherein:

the second adhesive member substantially fills a volume defined by the first active surface, the leadframe pad, the backside surface and an outer periphery of the second chip.

7. (Original) A multi-chip package according to claim 6, wherein:

the second adhesive member included both an adhesive tape member and a cured liquid adhesive.

8. (Original) A multi-chip package according to claim 7, wherein:

the adhesive tape member is positioned around the central opening in the leadframe pad and, in combination with a portion of the first active surface, an inner surface of the first adhesive member and an inner surface of the leadframe pad, forms an adhesive cavity; and

the cured liquid adhesive member substantially fills the adhesive cavity.

9. (Original) A multi-chip package according to claim 5, wherein:

the first plurality of bonding pads are arranged within an inner periphery of the leadframe pad.

10. (Original) A multi-chip package according to claim 9, wherein:

the first plurality of bonding pads are arranged to form a first pair and second pair of parallel rows;

the first pair of parallel rows being arranged generally symmetrically about and adjacent to a central axis of the first active surface; and

the second pair of parallel rows being arranged adjacent opposing edges of the first active surface.

11. (Original) A multi-chip package according to claim 10, wherein:

the first pair of parallel rows are substantially perpendicular to the second pair of parallel rows.

12. (Original) A multi-chip package according to claim 5, wherein:
the first plurality of bonding pads include a first group and a second group,
the first group being arranged within an inner periphery of the leadframe pad and
the second group being arranged outside an outer periphery of the leadframe pad.
13. (Original) A multi-chip package according to claim 5, wherein:
the second adhesive member is formed substantially from a cured liquid adhesive composition.
14. (Original) A multi-chip package according to claim 13, wherein:
the liquid adhesive composition is a nonconductive epoxy resin.
15. (Original) A multi-chip package according to claim 5, wherein:
the first chip extends beyond an outer periphery of the leadframe pad.
16. (Original) A method of manufacturing a multi-chip package comprising:
forming a leadframe having a leadframe pad, the leadframe pad having an upper surface and a lower surface;
attaching a first chip having a first plurality of bonding pads arranged on a first active surface to the lower surface of the leadframe pad using a first

adhesive member, the first adhesive member being arranged between a portion of the first active surface and a portion of the lower surface of the leadframe pad; and

attaching a second chip having a second plurality of bonding pads formed on a second active surface and a backside surface opposite the second active surface to the upper surface of the leadframe pad using a second adhesive member, the second adhesive member being arranged between a portion of the backside surface and a portion of the upper surface of the leadframe pad.

17. (Original) A method of manufacturing a multi-chip package comprising:

forming a leadframe having a leadframe pad, the leadframe pad having an upper surface, a lower surface and a central opening, inner leads and outer leads, the inner leads being arranged around the leadframe pad and being in electrical contact with corresponding outer leads;

attaching a first chip having a first plurality of bonding pads arranged on a first active surface to the lower surface of the leadframe pad using a first adhesive member, the first adhesive member being arranged between a portion of the first active surface and a portion of the lower surface;

forming a first plurality of bonding wires between the first plurality of bonding pads and the inner leads;

attaching a second chip having a second plurality of bonding pads formed on a second active surface and a backside surface opposite the second active surface to the upper surface of the leadframe pad using a second adhesive member, the second adhesive member being arranged between a

portion of the backside surface and a portion of the upper surface of the leadframe pad;

forming a second plurality of bonding wires between the second plurality of bonding pads and the inner leads;

forming a package body encapsulating the first and second chips, the first and second pluralities of bonding wires and the inner leads; and

forming the outer leads into a predetermined configuration.

18. (Original) A method of manufacturing a multi-chip package configured according to claim 5, comprising:

forming the leadframe;

attaching the first chip to the lower surface of the leadframe pad using the first adhesive member;

forming the first plurality of bonding wires between the first plurality of bonding pads and the inner leads;

attaching the second chip to the upper surface of the leadframe pad using the second adhesive member;

forming the second plurality of bonding wires between the second plurality of bonding pads and the inner leads;

forming the package body encapsulating the first and second chips, the first and second pluralities of bonding wires and the inner leads; and

forming the outer leads into a predetermined configuration.